# FPM-3120G Series

**Flat Panel Monitor with**
**12.1" Color TFT/LCD Display**

# User Manual

**Copyright Notice**

This document is copyrighted by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements to the products described in this manual at any time. Specifications are thus subject to change without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd., assumes no responsibility for its use, nor for any infringements upon the rights of third parties which may result from its use.

All brand and product names mentioned herein are trademarks or registered trademarks of their respective holders.

**This Manual Covers the Following Models**

- FPM-3120G-XA
- FPM-3120G-RA
- FPM-3120G-UA
- FPM-3121G-XA
- FPM-3121G-RA
- FPM-3121G-UA

Part No. 2003312080 2nd Edition

Printed in Taiwan February 2006

**Product Warranty (1 year)**

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

All defective products under normal / standard operation will be serviced by Advantech's global RMA system. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

**FCC Class B**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with this user's manual, it may cause harmful interference to radio communications.

Note that even when this equipment is installed and used in accordance with this user's manual, there is still no guarantee that interference will not occur. If this equipment is believed to be causeing harmful interference to radio or television reception, this can be determined by turning the equipment on and off. If the interference is occurring, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment to a power outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

**Packing List**

Before installing your equipment, make sure that the following materials have been received:

- FPM-3120G-XA Series flat panel monitor
- Accessory pack, including:
  - AC/DC adapter
  - AC/DC power adapter bracket
  - Video signal cable, 1.8m
  - Fixed panel-mounted bracket x 8 pcs
  - Screw Bags (M4x25 mm screws x 8 pcs)
  - DC in Power Cord bracket x 1 piece
  - RS-232 cable, 1.8m (FPM-3120G-RA/3121G-RA only)or USB cable, 1.8m (FPM-3120G-UA/3121G-UA only)
  - Driver/manual CD-ROM

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

**Additional Information and Assistance**

1. Visit the Advantech web site at www.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:

- Product name and serial number
- Description of your peripheral attachments
- Description of your software (operating system, version, application software, etc.)
- A complete description of the problem
- The exact wording of any error messages

**Safety Instructions**

1. Read these safety instructions carefully.
2. Keep this User's Manual for later reference.

3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:

    a. The power cord or plug is damaged.

    b. Liquid has penetrated into the equipment.

    c. The equipment has been exposed to moisture.

    d. The equipment does not work well, or you cannot get it to work according to the user's manual.

    e. The equipment has been dropped and damaged.

    f. The equipment has obvious signs of breakage.
15. DO NOT LEAVE THIS EQUIPMENT IN AN UNCONTROLLED ENVIRONMENT WHERE THE STORAGE TEMPERATURE IS BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS MAY DAMAGE THE EQUIPMENT.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70dB(A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

**Wichtige Sicherheishinweise**

1. Bitte lesen sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Verwenden Sie Keine Flüssig-oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Die NetzanschluBsteckdose soll nahe dem Gerät angebracht und leicht zugänglich sein.
5. Das Gerät ist vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor überhitzung schützt. Sorgen Sie dafür, daB diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim. AnschluB an das Stromnetz die AnschluBwerte.
9. Verlegen Sie die NetzanschluBleitung so, daB niemand darüber fallen kann. Es sollte auch nichts auf der Leitung abgestellt werden.
10. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
11. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
12. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. elektrischen Schlag auslösen.
13. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
14. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:

    a - Netzkabel oder Netzstecker sind beschädigt.

b - Flüssigkeit ist in das Gerät eingedrungen.

c - Das Gerät war Feuchtigkeit ausgesetzt.

d - Wenn das Gerät nicht der Bedienungsanleitung entsprech end funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.

e - Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.

f - Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

15. VOSICHT: Explisionsgefahr bei unsachgemaben Austausch der Batterie.Ersatz nur durch densellben order einem vom Hersteller empfohlenemahnlichen Typ. Entsorgung gebrauchter Batterien navh Angaben des Herstellers.

16. ACHTUNG: Es besteht die Explosionsgefahr, falls die Batterie auf nicht fachmännische Weise gewechselt wird. Verfangen Sie die Batterie nur gleicher oder entsprechender Type, wie vom Hersteller empfohlen. Entsorgen Sie Batterien nach Anweisung des Herstellers.

Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 635 Teil 1000 beträgt 70dB(A) oder weiger.

Haftungsausschluss: Die Bedienungsanleitungen wurden entsprechend der IEC-704-1 erstellt. Advantech lehnt jegliche Verantwortung für die Richtigkeit der in diesem Zusammenhang getätigten Aussagen ab.

DISCLAIMER: This set of instructions is given according to IEC704-1.

Advantech disclaims all responsibility for the accuracy of any statements contained herein.

# Contents


**Chapter 1 Introduction ..... 2**

1.1 Introduction ..... 2
1.2 Specifications ..... 2
1.3 LCD Specifications ..... 3
1.4 Power Adapter Specifications ..... 4
1.5 Connectors ..... 4
1.6 Dimensions ..... 6
Figure 1.1:FPM-3120G-UA Chassis Dimensions ..... 6

**Chapter 2 System Setup ..... 8**

2.1 Mounting FPM-3120G-UA Series ..... 8
2.1.1 Wall Mounting ..... 8
Figure 2.1:Wall Mounting ..... 8
2.1.2 Panel Mounting ..... 9
Figure 2.2:Panel Mounting ..... 9
Figure 2.3:Panel Mounting ..... 9
2.2 Desktop, Swing-ARM for FPM-3120G-UA Series ..... 10
2.2.1 Desktop Stand ..... 10
Figure 2.4:Desktop Stand: FPM-3120G-UA Series ..... 10
2.2.2 VESA ARM Mounting ..... 11
Figure 2.5:Swing-ARM: FPM-3120G-UA series ..... 11
2.2.3 Power Adapter ..... 12

**Appendix A Display Timing Mode & OSD ..... 14**

A.1 Supported Input Timing Modes ..... 14
Table A.1:Supported Input Formats ..... 14
A.2 Keypad Interface ..... 15
A.3 Power Indicator LED Status ..... 15
A.4 OSD Function ..... 16

**Appendix B Touchscreen ..... 18**

B.1 Introduction ..... 18
B.2 Touchscreen Specifications ..... 18
B.3 Installing Driver for Windows 2000/XP ..... 19
B.4 Configuring PenMount Windows 2000/XP Driver ..... 24
B.4.1 PenMount Control Panel ..... 24
B.4.2 PenMount Monitor Menu Icon ..... 34
B.4.3 PenMount Rotating Functions ..... 35
B.5 Uninstall the PenMount Windows 2000/XP driver ..... 36

CHAPTER 1

# Introduction

This chapter includes:

- Introduction
- Specifications
- LCD Specification
- Power Consumption
- Connectors
- Dimensions

# Chapter 1 Introduction

## 1.1 Introduction

Advantech's FPM-3120G series consists of 12.1" color TFT LCD flat panel monitors built specifically for industrial applications. With the optional touchscreen, the FPM-3120G-RA series offers user-friendly system control interfaces.

In addition to its usual application as an LCD panel monitor, the FPM-3120G-XA Series comes standard with Direct VGA control signal input, making it compatible with industrial PCs and workstations.

The OSD (On Screen Display) function allows you to adjust the display and turn the backlight on and off, a function that is highly appreciated among experienced users of industrial flat panel monitors.

The whole chassis is made of durable stainless steel, and the front panel is of aluminum with NEMA4/IP65 compliance.

For different applications, we provide the two models with different resolution. The FPM-3120G-XA series has original SVGA(800*600) resolution on 12.1" pane, while FPM-3121G-XA has XGA (1024*768) resolution. This suits for applications that need more details.

For applications in harsh environments, FPM-3120G-XA can work at -10 ~ 60° C (14 ~ 140 °F ), while FPM-3121G-XA can work at 0~50 °C (32~122°F)

Products in the FPM-3120G-XA Series can also be provided in touch screen versions (FPM-3120G-RA/3121G-RA and FPM-3120G-UA/3121G-UA). With an 8-wire resistive type touchscreen, this monitor can be immediately transformed into a remote control system. The Advantech FPM-3120G-XA series is the ultimate HMI solution for your industrial applications.

## 1.2 Specifications

**General**

- **Construction:** Heavy-duty stainless steel chassis
- **Front Panel:** Aluminum, NEMA4/IP65 compliant
- **Control:** OSD (On Screen Display) control pad on front side
- **Mounting:** Panel, wallmount, desktop or VESA Arm

- **Dimensions (W x H x D):** 310 x 250 x 44 mm (12.0" x 9.84" x 1.73")
- **Panel Mount Cut out Dimension (WxH):** 292x234 mm (11.5"x9.22")
- **Weight:** 3.0 kg (6.6 lb)
- **Vibration (operating):** 5 ~ 500 Hz, Random, 1 Grms
- **CE, FCC, BSMI, CCC certified**
- **Power Consumption:** +12V +/- 10% @ 3.5 A

**Touchscreen (Optional)**

- **Type:** 8 wire, analog resistive
- **Resolution:** 1024 x 1024
- **Light Transmission:** 75% (Gouge Hardness is greater than 4H per ASTM D3363-92 for HCC01, HCG10 and HCG12)
- **Controller:** RS-232 interface (for FPM-3120G-UA/3121G-RA version) or USB 1.1 (for FPM-3120G-UA/3121G-UA version)
- **Power Consumption:**
  FPM-3120G-RA/3121G-RA: +5 V @ 200 mA
  FPM-3120G-UA-U/3121G-UA: +5 V @ 100 mA (USB bus power)
- **OS Support:** Windows 2000/XP
- **Life Span:** 1,000,000 activations (typical) at a single point with a 5/8" diameter silicone finger with a 350g load at 2 touches per second

## 1.3 LCD Specifications

- **Display Type:** TFT LCD with XGA for FPM-3121G-XA series, or SVGA for FPM-3120G-XA series.
- **Display Size:** 12.1"
- **Max. Colors:** 262 k
- **Max. Resolution:** 1024 x 768 (for FPM-3121G-XA series); 800*600 (for FPM-3120G-XA series)
- **Viewing Angle (H/V):** FPM-3121G-XA: 120 °/100 °
  FPM-3120G-XA: 140 ° / 120 °
- **Luminance:** 350 cd/$m^2$
- **Storage Temperature:** -20 ~ 60 °C (-4 ~ 140 °F for FPM-3121G-XA)
  -20 ~ 70 °C (-4 ~ 158 °F for FPM-3120G-XA)

- **Operating Temperature:** 0 ~ 50 °C (32 ~ 122 °F for FPM-3121G-XA) -10 ~ 60 °C (14 ~ 140 °F for FPM-3120G-XA);
- **Contrast Ratio:** 500 : 1 (typ)
- **Lamp Life Time:** 50,000 hrs.

## 1.4 Power Adapter Specifications

- **Max Output Power:** 42 W
- **AC input voltage:** 100 - 240 V AC
- **Output voltage:** + 12 V @ 3.5 A
- **Safety Standards:** UL/CE/CCC/TUV/CB

## 1.5 Connectors

The following connectors are on the bottom of the FPM-3120G-XA Series:

**VGA Port (DB15)**

This DB-15 connector can be connected to the system via the external 15-pin DB-15 connector locatd on the left side of the system unit.

**RS-232 Touchscreen Connector (DB9) (with FPM-3120G-RA & FPM-3121-G-RA)**

This connector will only be present if a touchscreen is installed. It must be connected to the RS-232 port of the PC. The touchscreen cable is included with all orders that include the touchscreen option.

**USB Touchscreen Connector (USB type B) (with FPM-3120G-UA & FPM-3121-G-UA)**

This connector will only be present if a touchscreen is installed. It must be connected to the USB port of the PC. The touchscreen cable is included with all orders that include the touchscreen option.

**DC 12V Power In**

This connector connects to the DC 12V Switching Power Supply.

***Warning:***

Before you connect a VGA cable between the monitor and a PC, please note the following issues.

1. If you have installed a operating system in the PC, make sure the vertical frequency is within the acceptable range. (Refer to Appendix B)
2. If you have not installed a operating system, you have to adjust the vertical frequency to fall within the range.

## 1.6 Dimensions

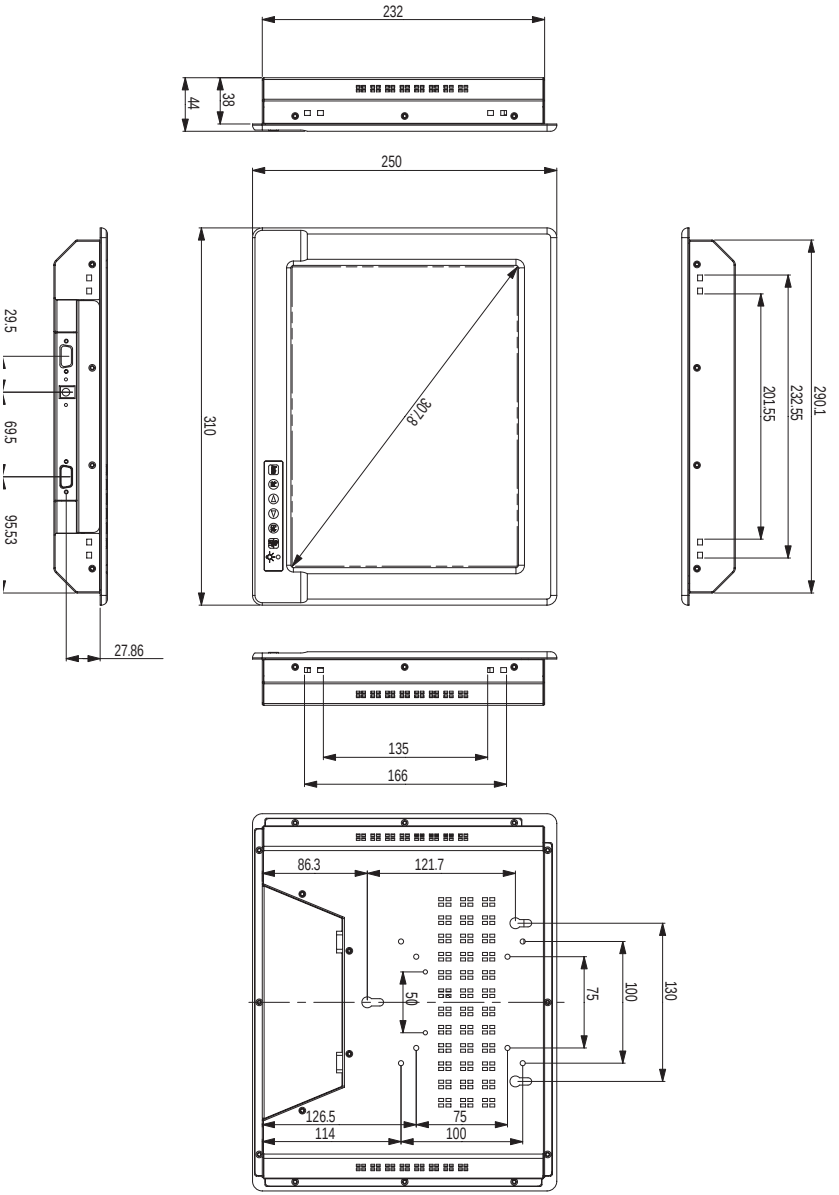



***Figure 1.1: FPM-3120G-UA Chassis Dimensions***

CHAPTER 2

# System Setup

- Mounting the Monitor
- Wall / Panel Mounting
- Desktop / Swing-Arm Mounting

# Chapter 2 System Setup

## 2.1 Mounting FPM-3120G-UA Series

Monitors in the FPM-3120G series can be flexibly mounted. The versatility of the FPM-3120G series mounts enable them to be mounted on your desk or almost anywhere else.

### 2.1.1 Wall Mounting

Please refer to figure 2.1 and follow the steps below to install FPM-3120G series on a wall. The wall mounting kit is optional. (P/N: FPM-2150DESK-MT)

1. Screw the hook and wall-mounted brackets on the wall.
2. Place the FPM-3120G series in the bracket.

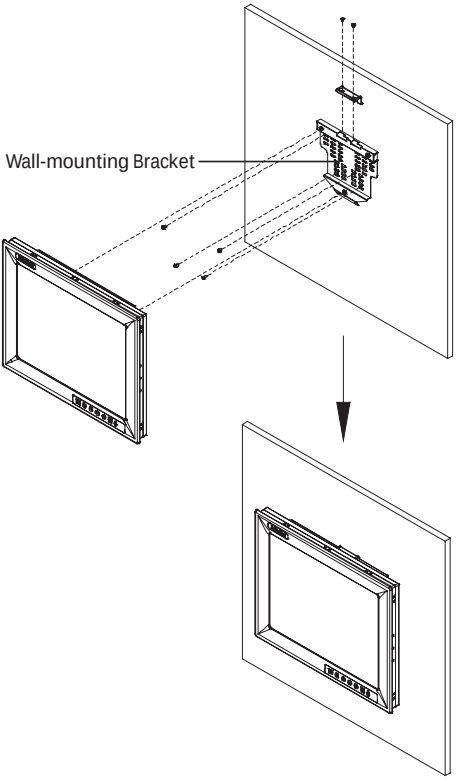



***Figure 2.1: Wall Mounting***

### 2.1.2 Panel Mounting

Refer to figure 2.2 and follow the instructions below to install in a panel.

1. Insert the FPM-3120G series' into the cutout hole of the panel. (The dimensions of the cutout is 292 x 234 mm (11.5 " x 9.22 "))
2. Place eight panel-mounting brackets on FPM-3120G series' (2 on the top, 2 on the bottom, 2 on the left, and 2 on the right).
3. Fasten the eight panel-mounting brackets with screws.
4. Mount the FPM-3120G series' monitor on the panel by the screws on the ten panel-mounted brackets.

***Figure 2.2: Panel Mounting***

***Figure 2.3: Panel Mounting***

## 2.2 Desktop, Swing-ARM for FPM-3120G Series

The FPM-3120G series' monitors can also be mounted in other ways. You can use the desktop stand for desktop use or attach it on a swing-arm bracket.

### 2.2.1 Desktop Stand

Refer to figure 2.4. The desktop stand bracket is attached to the rear of FPM-3120G series'. Simply attach the small bracket at the rear side of the monitor by screwing the two screws. The bracket now becomes the desktop stand bracket.
The desktop stand kit is optional. (P/N: FPM-2150DESK-MT)

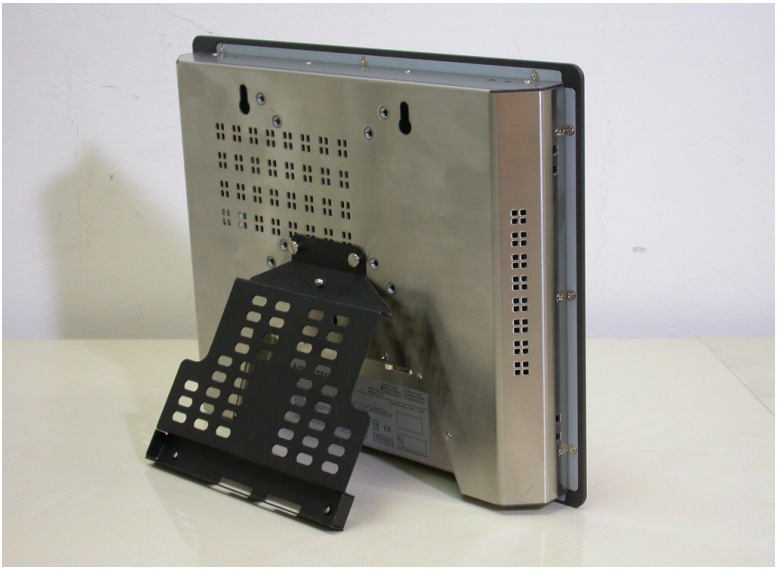


*Figure 2.4: Desktop Stand: FPM-3120G Series*

### 2.2.2 VESA ARM Mounting

FPM-3120G series has been designed with support for the VESA arm standard. Refer to figure 2.5.

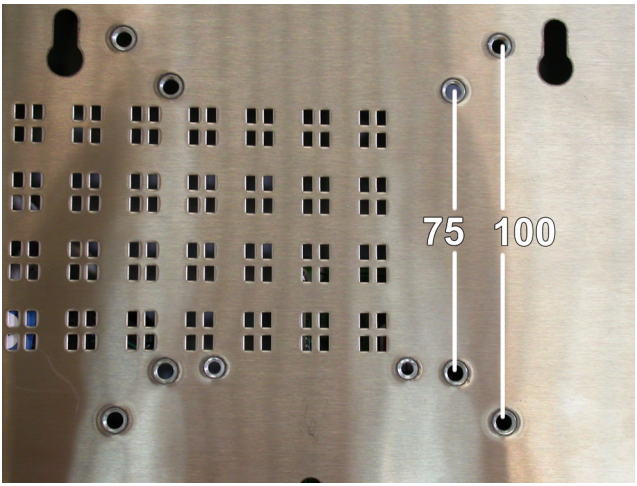
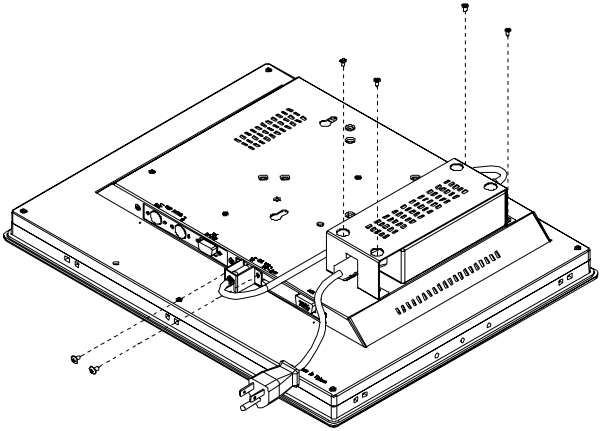


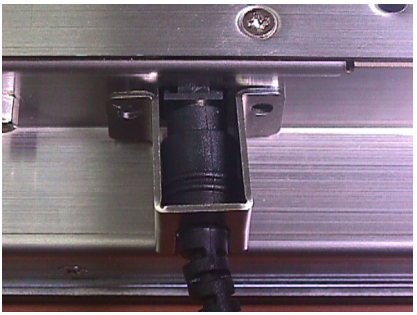

***Figure 2.5: Swing-ARM: FPM-3120G series***

## 2.2.3 Power Adapter

The power adapter bracket can be attached to the rear of FPM-3120G series. Attach the bracket at the rear side of the monitor by screwing the four screws. The DC terminal of the AC/DC adapter can be locked on the rear case by the DC in Power Cord bracket.



.



APPENDIX A

# Display Timing Mode and OSD

# Appendix A  Display Timing Mode & OSD

## A.1  Supported Input Timing Modes

The different frequencies below are already programmed in this module, and the synchronous signal inputs are automatically recognized.

***Table A.1: Supported Input Formats***

| | Vertical Frequencies | | | | |
|---|---|---|---|---|---|
| Resolution | 56 Hz | 60 Hz | 70 Hz | 72 Hz | 75 Hz |
| 640 x 480 | | Yes | | Yes | Yes |
| 720 x 400 | | | Yes | | |
| 800 x 600 | Yes | Yes | | Yes | Yes |
| 1024 x 768 | | Yes | Yes | | Yes |

Note 1: Even if the preset timing is entered, some adjustment of functions such as Horizontal period, CLK-delay and display position, are required. The adjusted values are memorized in every preset number.

Note 2: This module recognizes the synchronous signals with near preset timing of the frequency of the HS and Vsync, even in the case that the signals other than the preset timing that were entered.

Note 3: Because adjustments may not fit, such as differing magnifying ratios or, in the case that you use it except for the display timing that was preset.

Note 4: The 1024*768 resolution is only possible with FPM-3121G-XA.

## A.2 Keypad Interface

| | |
|---|---|
| AUTO | Press this button to execute auto-adjustment process. |
| SEL | Press to show the OSD screen or select an item to change its setting. |
| | Press to move between items or increase/decrease item setting.<br>Press both buttons simultanously to lock/unlock the current settings. |
| EXIT | Press to close the selected item or the whole OSD screen. |
| ON/OFF | Press the ON/OFF button to turn FPM-3120G-UA's backlight on and off. When power is off, the power indicator will be blinking. |

## A.3 Power Indicator LED Status

The keypad interface provides a driver for a dual color LED to indicate status.

(1) Green: COMMON board detects a input signal and sends output signal to LCD panel.

(2) Orange: No signal detected, or out of range.

(3) Green and blinking: Backlight is off.

(3) No color: Power off

## A.4 OSD Function

Each selected value is stored into LCD memory after SEL signal input or time out. The stored values are not affected if the power is turned off. But the selected value is not available in case a selected mode is changed before time out or power is turned off before time out.

The default definition of input keys is shown as following:

| Main Menu | Sub Menu | Functionality |
|---|---|---|
| Brightness | | Adjust brightness of the display |
| Contrast | Contrast | Adjust contrast of RGB channel simultanously |
| | Sub Contrast RGB | Adjust color of selected RGB channel |
| Position | H.Size | Adjust phase of ADC sample clock |
| | Clock Phase | Adjust number of clocks per line |
| | H.Position | Move input image capture window left or right |
| | V.Position | Move the input image capture window up or down |
| Information | Information | System input mode information and maximum range supported by screen |
| All Reset | All Reset | Reset menu parameters to factory default setting |

APPENDIX B

# Touchscreen

This appendix contains information on the touchscreen, its installation and configuration.

# Appendix B Touchscreen

## B.1 Introduction

The FPM-3120G Series' optional touchscreen uses advanced 3M™ 8-wire resistive technology. It provides more accurate sensing capacity than other technologies. The touchscreen is specially designed for tough industrial environments, and has been approved to FCC Class B standards.

## B.2 Touchscreen Specifications

**Electrical**

- **Contact bounce:** < 10 ms
- **Operating voltage:** 5 V (typical)
- **Sheet Resistance:** 350 +/- 22% Ω per Square.
- **Linearity:** <1.5% full scale linearity error in either direction.
- **Insulation Resistance:** >20 MΩ @ 25 V DC

**Durability**

- **Test conditions:** 4 H hardness, 0.04" stylus pen, 350 gram load
- **Point activation:**
  1 Million activations on a single point with a 5/8" diameter silicone finger with a 350g load at 2 Hz
- **Character Activation Life:**
  >100,000 characters written within a 20 mm x 20 mm area on the touch screen.
- **Chemical resistance:**
  Hard coating is highly resistant to most solvents and chemicals

**Optical**

- **Visible light transmission:** 75% typical (>74% @ 550 nm test)
- **Clarity:** Clear Finish - 25%, Antiglare Finish - 15%

**Sensor board**

- Chemical strengthened glass with 4 H hardness standard. (Test condition: ASTM D3363-92A)

**Ball drop test**

- Able to bear a 225 g steel ball dropped from 660 mm elevation without breaking

**Environmental Specifications**

- **Operating Temperature Range:** -20° C ~ +50° C, 2 weeks at 50° C / 90% RH.
- **Storage Temperature High:** +70° C, 240 hours at ambient humidity.
- **Storage Temperature Low:** -40° C, continuous at ambient humidity.
- **Accelerated Aging:** 100 hours at 60° C / 95% RH.
- **Thermal Shock:** 25 cycles (one cycle is 30 min. dwell alternating from -40 to +85° C with less than 10 min. transfer time.

## B.3 Installing Driver for Windows 2000/XP

The touchscreen has drivers for Windows 2000 and Windows XP. You should read the instructions in this chapter carefully before you attempt installation.

*Note 1:* *The following windows illustrations are examples only. You must follow the flow chart instructions and pay attention to the instructions which then appear on your screen.*

*Note 2:* *Install the HMI CD Driver into the system CD-ROM (D:\ means CD-ROM)*

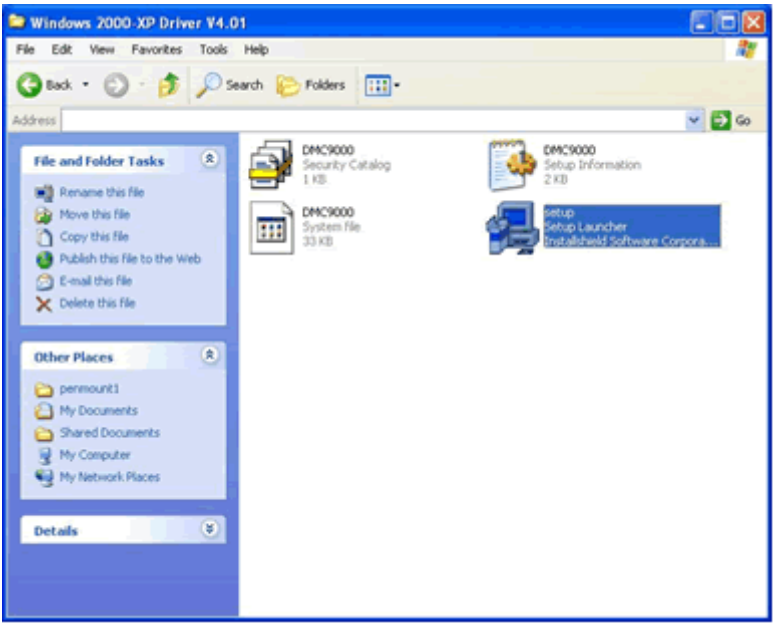
Before installing the Windows 2000/XP driver software, you must have the Windows 2000/XP system installed and running on your computer.

If you have an older version of the PenMount Windows 2000/XP driver installed in your system, please remove it first. Follow the steps below to install the PenMount Windows 2000/XP driver.

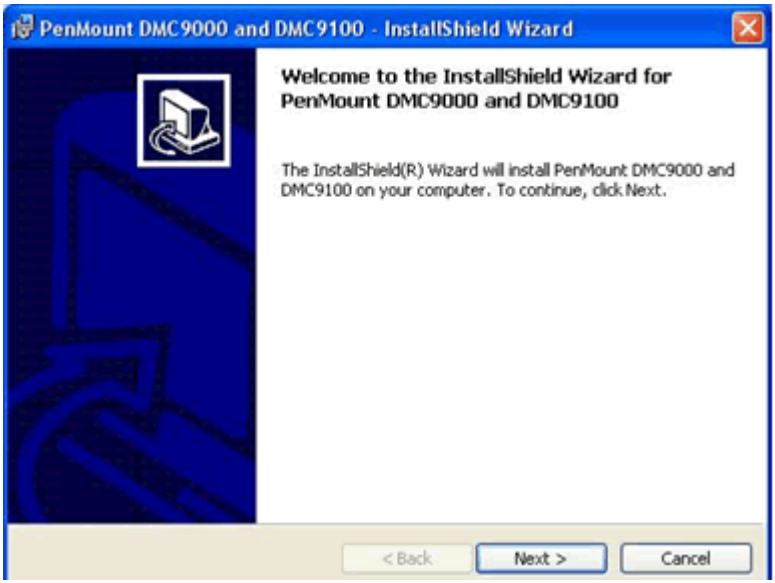
1. When the system first detects the controller board, a screen appears that shows “Unknown Device.” Do not use this hardware wizard. Press Cancel.

2. FPM-3120G-RA
   Insert the Driver CD-ROM. Go to:
   \TouchScreen-DRV\Penmont 9000(resistive)\Windows 2000-XP Driver\. Click **setup.exe**.

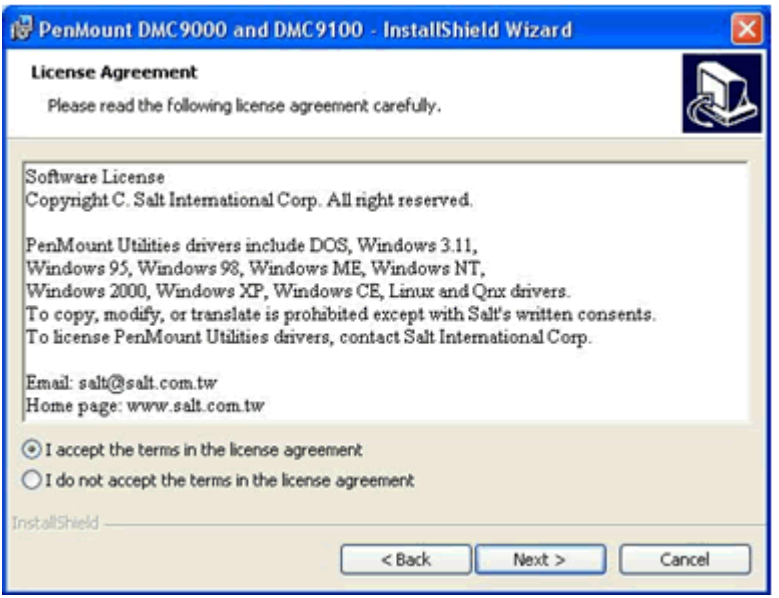
   FPM-3120G-UA
   Insert the Driver CD-ROM. Go to:
   \TouchScreen-DRV\Penmount USB\Windows Driver\. Click **setup.exe**.



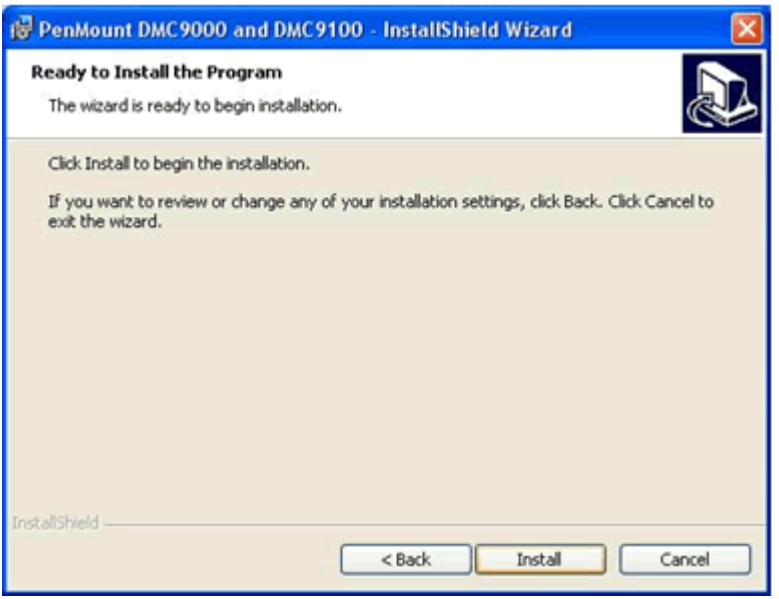

3. The screen displays the installation wizard for the PenMount software. Click “Next”.



4. A License Agreement appears. Click “I accept…” and “Next”

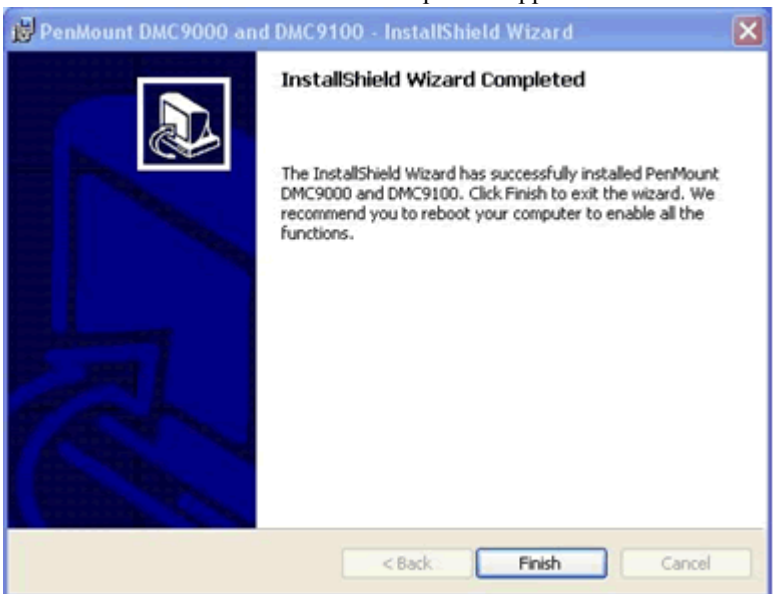



5. The “Ready to Install the Program” screen appears. Select “Install.”



6. The next screen is “Hardware Installation.” Select “Continue Anyway.”

7. The “InstallShield Wizard Completed” appears. Click “Finish.”



## B.4 Configuring PenMount Windows 2000/XP Driver

Upon rebooting, the computer automatically finds the new 9000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

1. After installation, click the PenMount Monitor icon “PM” in the menu bar.
2. When the PenMount Control Panel appears, click “Calibrate.”

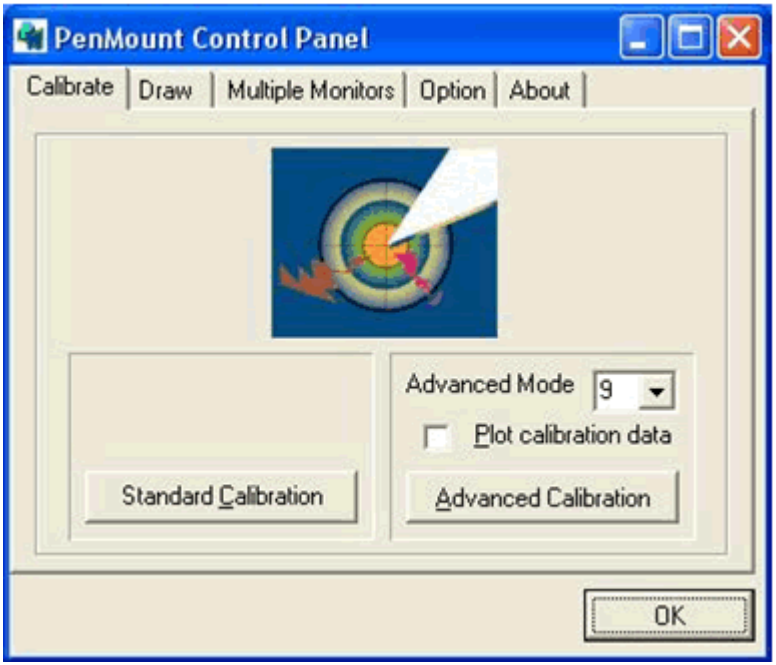
### B.4.1 PenMount Control Panel

The functions of the PenMount Control Panel are Calibrate, Draw, Multiple Monitors, Option, and About, which are explained in the following sections.

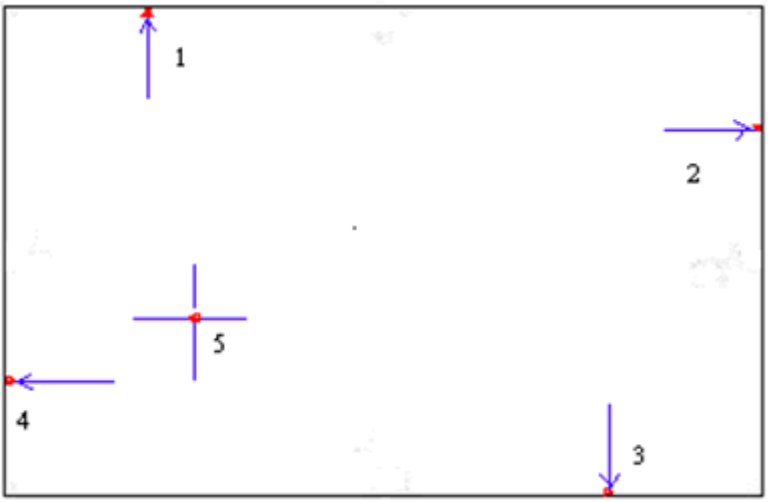
**Calibrate**

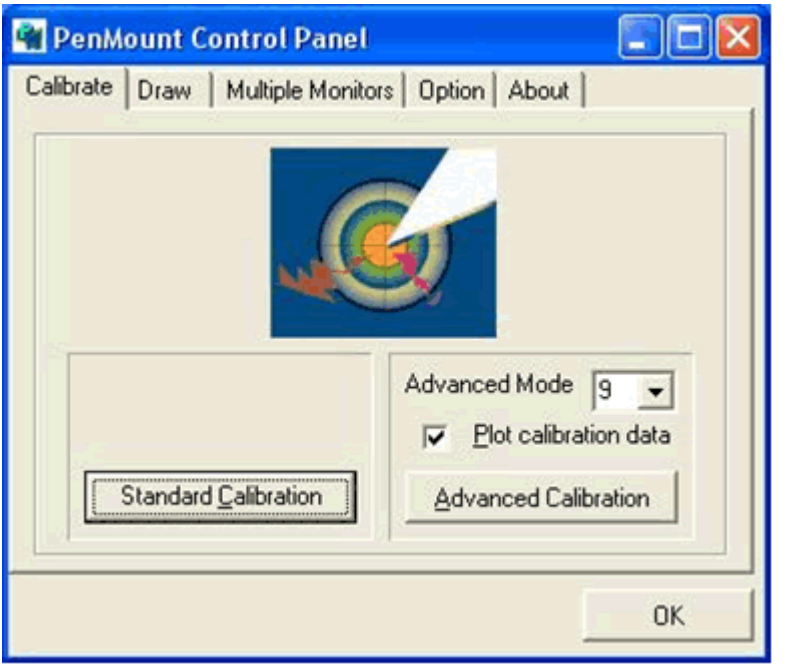
This function offers two ways to calibrate your touch screen. ‘Standard Calibration’ adjusts most touch screens. ‘Advanced Calibration’ adjusts aging touch screens.

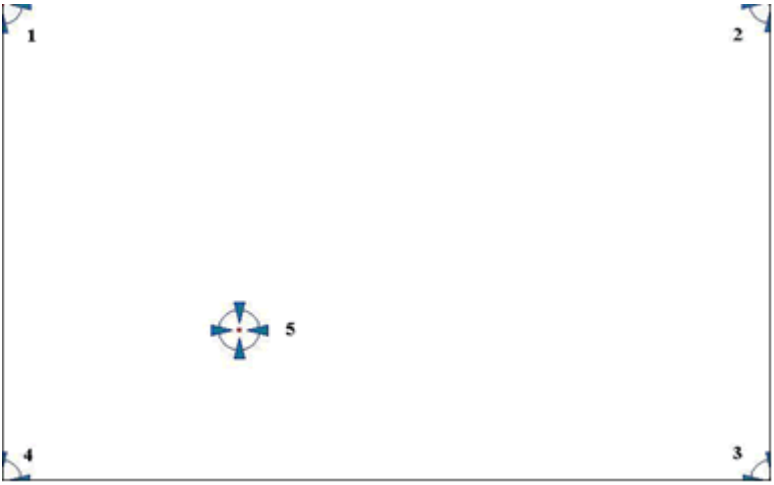
| | |
|---|---|
| Standard Calibration | Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press ‘ESC’. |
| Advanced Calibration | Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ‘ESC’. |




*NOTE:* *The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy.*


1
2
3
4
5

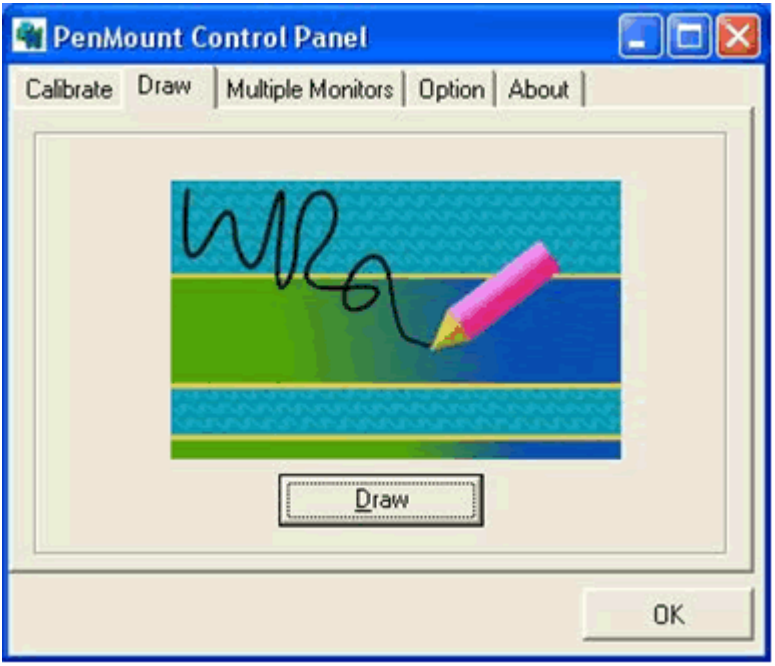

PenMount Control Panel
Calibrate
Draw
Multiple Monitors
Option
About
Advanced Mode
9
Plot calibration data
Standard Calibration
Advanced Calibration
OK




| | |
|---|---|
| Plot Calibration Data | Check this function and a touch panel linearity comparison graph appears when you have finished Advanced Calibration. The blue lines show linearity before calibration and black lines show linearity after calibration. |

**Draw**

Tests or demonstrates the PenMount touch screen operation. The display shows touch location. Click Draw to start. Touch the screen with your finger or a stylus and the drawing screen registers touch activity such left, right, up, down, pen up, and pen down.




Touch the screen with your finger or a stylus and the drawing screen registers touch activity such left, right, up, down, pen up, and pen down.

Click Clear Screen to clear the drawing.

**Multiple Monitors**

Multiple Monitors supports from two to six touch screen displays for one system. The PenMount drivers for Windows 2000/XP support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the RS-232 interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors supports the following modes:

Windows Extend Monitor Function

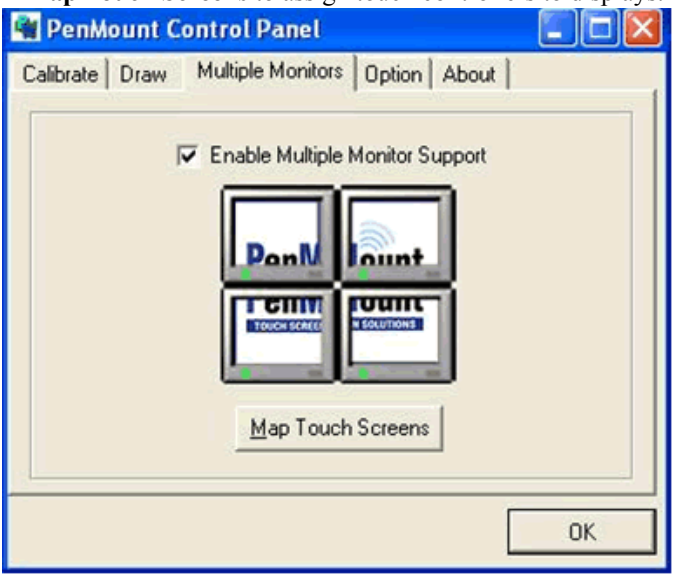
Matrox DualHead Multi-Screen Function

nVidia nView Function

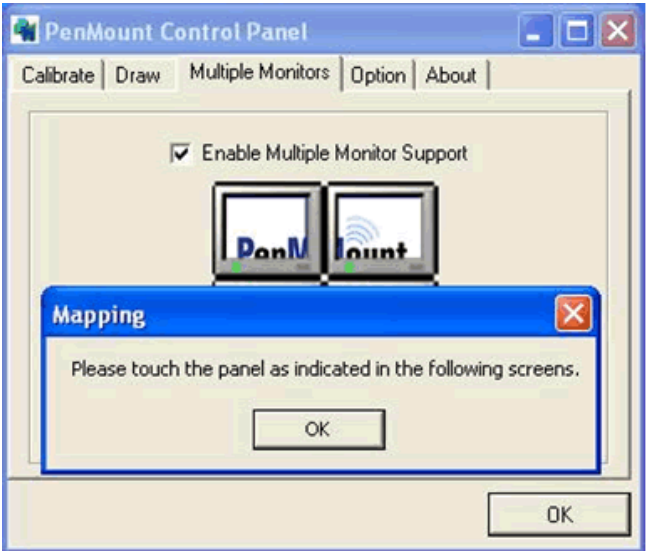
*NOTE: The Multiple Monitors function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the Rotating function is disabled.*

Enable the multiple display function as follows:

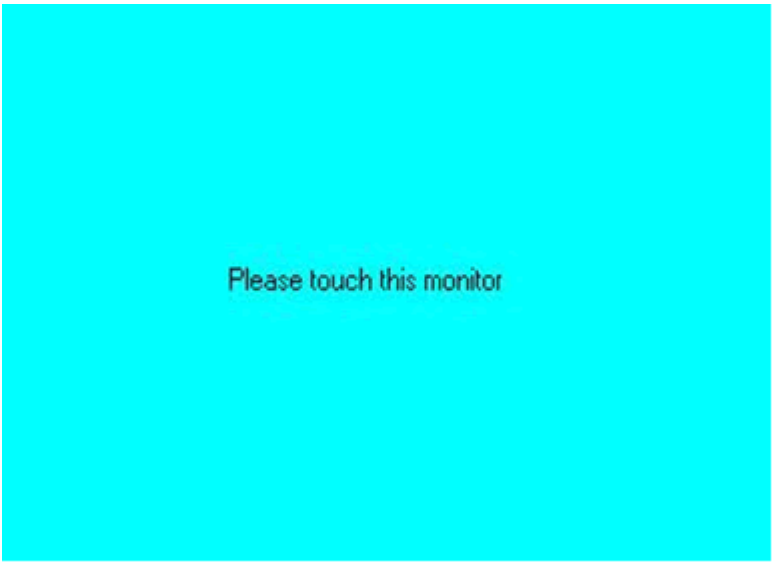
1. Check the **Enable Multiple Monitor Support** box; then click **Map Touch Screens** to assign touch controllers to displays.



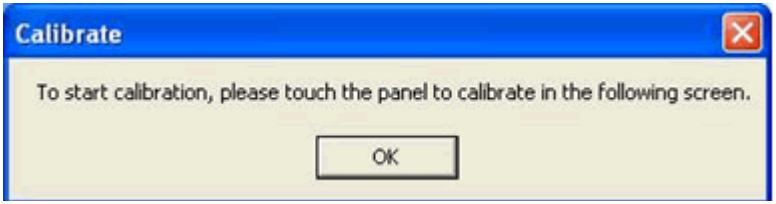
2. When the mapping screen message appears, click OK.



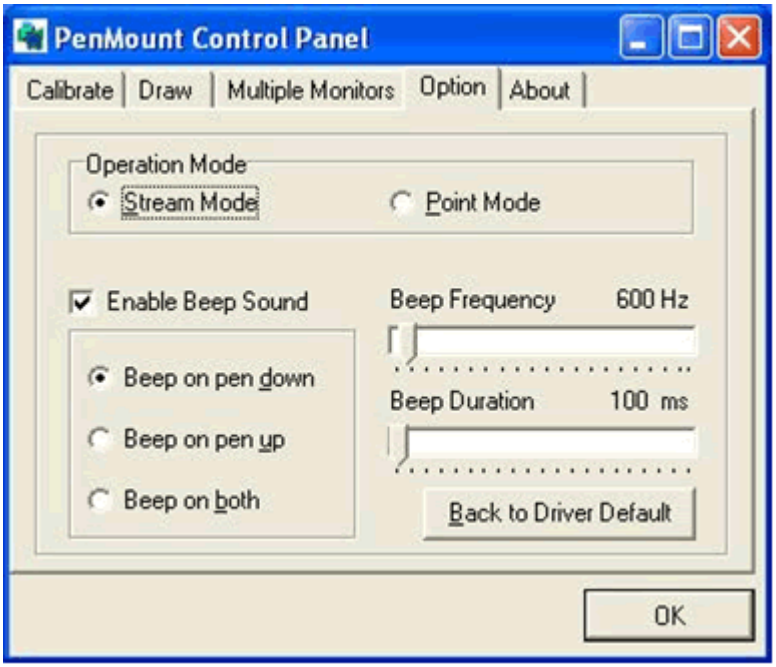

3. Touch each screen as it displays “Please touch this monitor.” Following this sequence and touching each screen is called **mapping the touch screens**.



4. Touching all screens completes the mapping and the desktop reappears on the monitors.




5. Select a display and execute the 'Calibration' function. A message to start calibration appears. Click OK.




6. "Touch this screen to start its calibration" appears on one of the screens. Touch the screen.
7. "Touch the red square" messages appear. Touch the red squares in sequence.
8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

*NOTE:* *1. If you used a single VGA output for multiple monitors, please do not use the Multiple Monitors function. Just follow the regular procedure for calibration on each of your desktop monitors.*

*2. The Rotating function is disabled if you use the Multiple Monitors function.*

*3. If you change the resolution of display or screen address, you have to redo Map Touch Screens so the system understands where the displays are.*

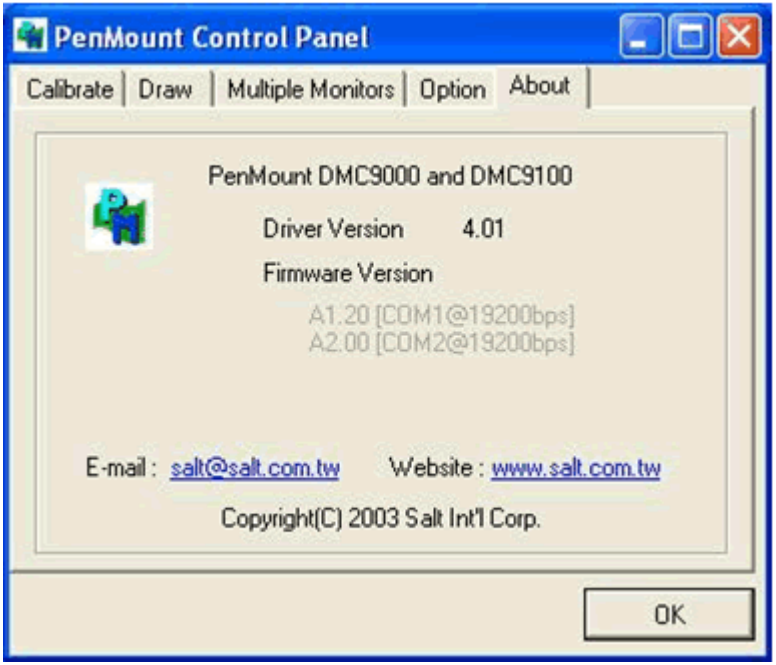
**Option**

This panel function supports two modes—Operation Mode and Beep Sound Mode—which allow configuration for specific touch screen applications, such as point-of-sales (POS) terminals.

| | |
|---|---|
| Operation Mode | This mode enables and disables the mouse's ability to drag on-screen icons—useful for configuring POS terminals.<br>*Stream Mode* – Select this mode and the mouse functions as normal and allows dragging of icons.<br>*Point Mode* – Select this mode and the mouse only provides a click function, and dragging is disabled. |
| Beep Sound Mode | *Enable Beep Sound* – turns beep function on and off<br>*Beep on Pen Down* – beep occurs when pen comes down<br>*Beep on Pen Up* – beep occurs when pen is lifted up<br>*Beep on both of Pen Down/Up* – beep occurs on both<br>*Beep Frequency* – modifies sound frequency<br>*Beep Duration* – modifies sound duration |

**About**

This panel displays information about the PenMount controller and driver version.



### B.4.2 PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 2000/XP system when you turn on PenMount Monitor in PenMount Utilities.

PenMount Monitor has the following functions.

| | |
|---|---|
| Beep | Turns beep on or off. |
| Right Button | When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions. |
| Pen Stabilizer | Check this function to reduce cursor vibration for relatively unstable touch screens, or where there may be excess vibration. Normally this function is not checked. |
| Exit | Exits the PenMount Monitor function. |

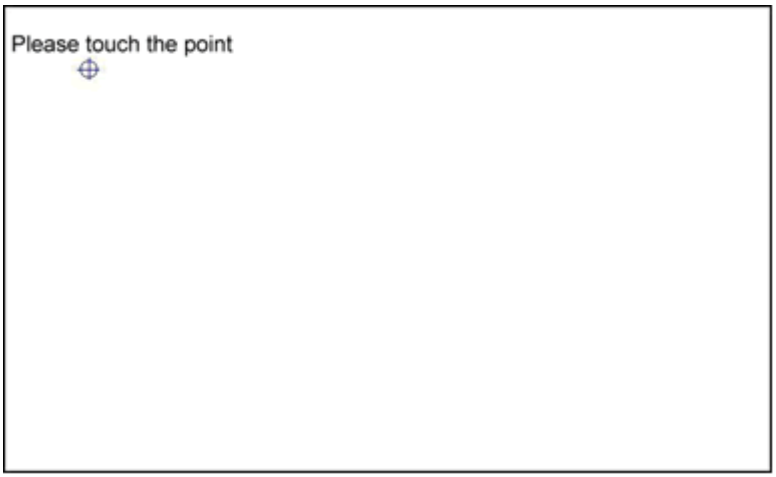
### B.4.3 PenMount Rotating Functions

The PenMount driver for Windows 2000/XP supports several display rotating software packages. Please see Chapter 5 for more information. The PenMount drivers for Windows 95, Windows 98/Me, Windows 2000/XP, as well as Windows 98 USB and Windows Me/2000/XP support display rotating software packages such as:

- Portrait's Pivot Screen Rotation Software
- ATI Display Driver Rotate Function
- nVidia Display Driver Rotate Function
- SMI Display Driver Rotate Function
- Intel 845G/GE Display Driver Rotate Function

**Configuring the Rotate Function**

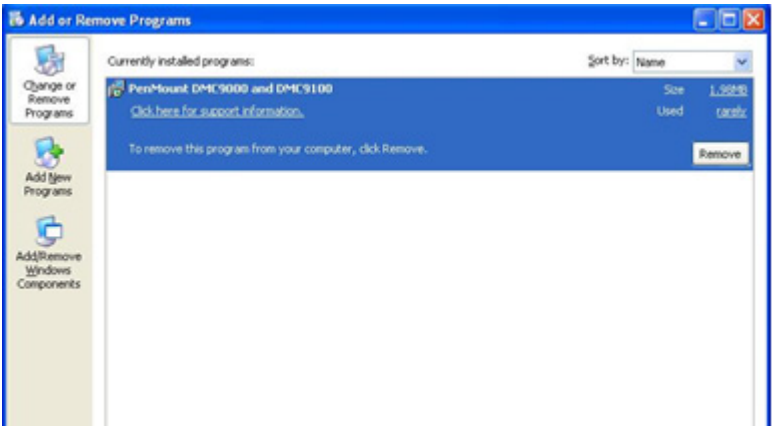
1. Install the rotation software package.
2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.



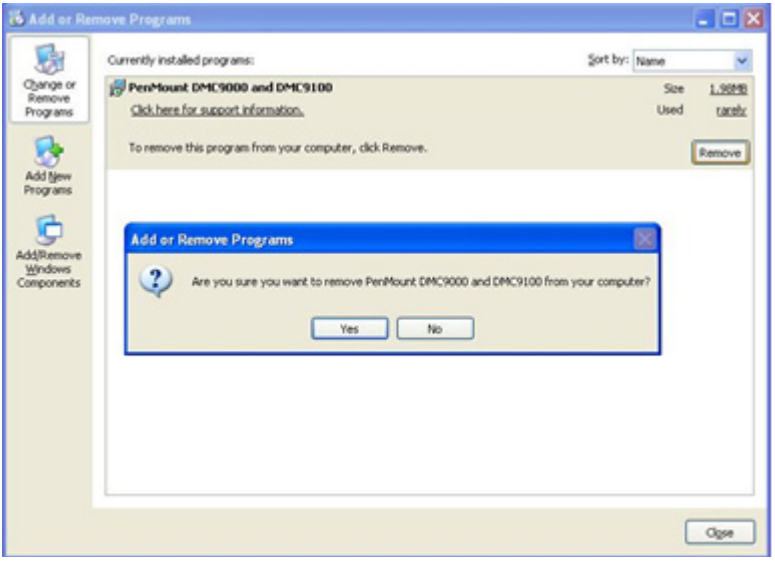

*NOTE:* The Rotate function is disabled if you use Monitor Mapping

## B.5 Uninstall the PenMount Windows 2000/XP driver

1. Exit the PenMount monitor (PM) in the menu bar.
2. Go to Settings, then Control Panel, and then click Add/Remove program. Select PenMount DMC9000 and click the Add/Remove button.




3. Select PenMount DMC9000 and DMC9100. Click the Remove button.




4. Select 'Yes' and "Close" to remove the PenMount Windows 2000/XP driver, and reboot the system.